UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,382	04/14/2004	Chih-Ping Liu	55600.8014.US01	8686

79975 7590 08/06/2008

King & Spalding LLP
P.O. Box 889
Belmont, CA 94002-0889

EXAMINER	
HISSONG, BRUCE D	

ART UNIT	PAPER NUMBER
1646	

MAIL DATE	DELIVERY MODE
08/06/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/825,382	LIU ET AL.	
	Examiner	Art Unit	
	Bruce D. Hissong, Ph.D.	1646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 June 2008 and 05 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5 and 14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/12/2008 has been entered.

2. Claims 1-5 and 14 are pending and are the subject of this office action.

Claim Rejections - 35 USC § 112, first paragraph - enablement

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Rejection of claims 1-5 and 14 under 35 USC § 112, first paragraph, regarding lack of enablement for a method of increasing the IL-10/IFN-γ ratio in a subject comprising administration of IFN-τ polypeptides that are 90% homologous to the polypeptide of SEQ ID NO: 2, as set forth on pages 2-4 of the office action mailed on 1/8/2008, is *withdrawn*.

In the response received on 5/12/2008 the Applicants argue that the claims of the instant invention require the administered polypeptide to be an IFN-τ polypeptide, and require the IFN-τ polypeptide to "produce an initial measurable increase in the subject's blood IL-10 level, relative to the blood IL-10 level in the subject in the absence of IFN-τ administration, with (i) no substantial change in the subject's blood IFN-γ level relative to the IFN-γ level in the absence of IFN-τ administration or (ii) a decrease in the subject's IFN-γ level relative to the IFN-γ level in the absence of IFN-τ administration". Therefore, the claims require the administered IFN-τ polypeptides to increase the IL-10/IFN-γ ratio, or else be excluded from the claimed genera of IFN-τ polypeptides. The Applicants further argue that the specification enables a person of ordinary skill in the art to use any polypeptides that do meet the

requirements of the claim language, and thus the claimed method can be practiced without undue experimentation by using the polypeptides encompassed by the claim language.

These arguments have been fully considered and are persuasive. It is also noted that the instant specification teaches IFN-τ proteins from 10 different species, and a person of ordinary skill in the art could readily determine by sequence alignment which amino acid residues are critical for proper IFN-τ structure/function. Accordingly, the rejection is withdrawn.

Claim Rejections - 35 USC § 112, first paragraph – written description

Rejection of claims 1-5 and 14 under 35 USC § 112, first paragraph, regarding lack of written description for the genus of IFN-τ polypeptides that are at least 90% identical to SEQ ID NO: 2 and capable of stimulating an increase in the IL-10/IFN-γ ratio in a subject, as set forth on pages 4-5 of the office action mailed on 1/8/2008, is *withdrawn*.

In the response received on 5/12/2008, the Applicants argue that the language of the currently amended claims is similar to the situation set forth in Example 11B of the March 2008 Written Description Training Materials because the claims recite a percent identity to a specific sequence and further recite a functional limitation. The Applicants note that Example 11B specifies that recitation of 85% sequence identity to a specific polypeptide together with a functional limitation satisfies the written description requirement because "a correlation between the function of the claimed protein and the structure of the disclosed binding and catalytic domains." In the instant case, the Applicants argue that the claims recite 90% sequence identity to the polypeptide of SEQ ID NO: 2, and the specification and art provide an abundant amount of structure-function information regarding IFN-τ, and therefore the specification satisfies the requirement for written description because one of ordinary skill in the art would recognize that the Applicants are in possession of the claimed genus.

These arguments have been fully considered and are persuasive. It is also noted that the instant specification teaches IFN-τ proteins from 10 different species, and a person of ordinary skill in the art could readily determine by sequence alignment which amino acid residues are critical for proper IFN-τ structure/function. Accordingly, the rejection is withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5 and 14 ***remain rejected*** under 35 USC § 103(a) as being obvious in view of the combination of Soos *et al*, van Boxel-Dezaiare *et al*, and Petereit *et al*, as set forth on pages 5-6 of the office action mailed on 1/8/2008.

Soos *et al* teach oral administration of IFN-τ polypeptides for the treatment of multiple sclerosis (see abstract; p. 5, lines 8-21; p. 11, line 5 – p. 12, line 16, p. 23, Example 1; and all claims). Specifically, Soos *et al* teaches administration of IFN-τ defined by SEQ ID NO: 2, which exhibits 100% homology to the polypeptide defined by SEQ ID NO: 2 of the instant application (see sequence comparison 1 – previous office action). Soos *et al* also teaches that orally administered IFN-τ increases serum IL-10 levels (p. 26, Example 5), while promoting a decrease of IFN-γ blood levels (p. 2233-2234, Figure 2), thus resulting in an overall increase in the IL-10/IFN-γ ratio. Furthermore, Soos *et al* teaches combination therapies wherein IFN-τ is co-administered with other therapeutic agents effective for the treatment of multiple sclerosis (p. 20, line 19 – page 21, line 14). Soos *et al* is silent regarding oral administration of IFN-τ at doses of at least 5×10^8 units/day.

van Boxel-Dezaire *et al* teaches that multiple sclerosis is characterized by decreased IL-10 levels (see Figures 1-3), and suggests that IL-10 plays an important role in the control of disease progression. Petereit *et al* teach that multiple sclerosis patients with higher IL-10 secretion had lower clinical disability scores than patients with lower IL-10 secretion (see abstract and p. 211-212).

In the response received on 5/12/2008, the Applicants note that independent claim 1 has been amended to recite administration of 1×10^9 Units of IFN-τ in order to produce a measure increase in a subjects IL-10/IFN-γ ratio. The Applicants argue that none of the cited references, separately or in combination, teach orally administering IFN-τ to a subject at a dosage of greater than about 1×10^9 Units. The Applicants also argue that Soos *et al* teaches administration of 1×10^8 Units/day of IFN-τ, and preferably 1×10^7 Units/day, and therefore Soos *et al* does not provide the motivation to administer IFN-τ at 1×10^9 Units/day, as is currently claimed. Furthermore, van Boxel-Dezaire *et al* does cure this deficiency, and therefore the claims are not obvious in view of the cited combination.

These arguments have been fully considered and are not persuasive. As set forth on pages 5-6 of the previous office action mailed on 1/8/2008, the combination of Soos *et al*, van Boxel-Dezaire *et al*, and Petereit *et al* provides the motivation to orally administer IFN-τ to a subject with multiple sclerosis. Thus, the general conditions of claim 1, namely oral administration of IFN-τ to treat multiple sclerosis, wherein this treatment is characterized by an increase in IL-10 secretion and a decrease in IFN-γ secretion, is disclosed in the cited combination of references.

MPEP 2144.05 states:

"[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 454, 105 USPQ 223, 235, (CCPA 1955).

In the instant case, a person of ordinary skill in the art would readily be able to determine the optimum dosage of IFN-τ for increasing IL-10 secretion and decreasing IFN-γ secretion in a subject with multiple sclerosis. It is also noted that Soos *et al* teaches that IFN-τ is less toxic that other IFNs, and can therefore be administered at higher doses. Furthermore, one of ordinary skill in the art would know that administration of higher doses of a given therapeutic agent is often required to increase the effectiveness of said agent, and would thus find further motivation to optimize the IFN-τ dosage. Therefore, in the absence of evidence to the contrary, one of ordinary skill in the art would reasonably expect administration of a higher dose of IFN-τ to be more effective for the treatment of multiple sclerosis by increasing IL-10 secretion and lowering IFN-γ secretion.

Conclusion

No claim is allowable.

All claims are drawn to the same invention claimed in the parent application prior to the filing of this Continued Prosecution Application under 37 CFR 1.53(d) and could have been finally rejected on the grounds and art of record in the next Office action. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing under 37 CFR 1.53(d). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH

shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bruce D. Hissong, Ph.D., whose telephone number is (571)272-3324. The examiner can normally be reached M-F from 8:30 am - 5:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Nickol, Ph.D., can be reached at (571) 272-0835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Bruce D. Hissong
Art Unit 1646

/Robert Landsman/
Primary Examiner, Art Unit 1647